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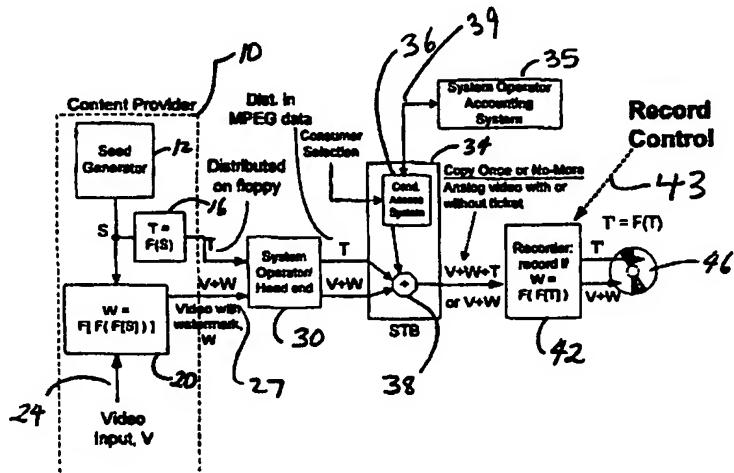
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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR ENHANCED AUDIO/VIDEO SERVICES WITH WATERMARKS AND ASSOCIATED DATA



WO 00/51348 A3

(57) Abstract: Method and apparatus for controlled copying of an audio or video signal transmitted over a cable television or direct satellite broadcast system or the internet. Copyrighted (or other) audio or video material is protected from unwanted copying (recording) by the combination of a watermark embedded in the audio or video signal at the head end together with additional copy protection data inserted in the audio or video signal, either a ticket or a second watermark. Video line (21) in the vertical blanking interval for (NTSC TV) is used to hold the ticket (cryptographic counter). An audio or video watermark is embedded in the active portion of the audio or video signal. Only if the consumer is willing to pay a fee is the video signal with both the watermark and the ticket transmitted to his recording device which then matches the watermark to a mathematical function of the ticket, and only if they match is recording permitted. Alternatively, this consumer control may operate on a second watermark in the audio or video. The corresponding playback device outputs an audio or video signal which does not have the ticket and hence no further copying is permitted. This enables a single copy to be made upon payment.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04N5/913

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category ^a	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 97 13248 A (PHILIPS ELECTRONICS N. V. ET AL.) 10 April 1997 (1997-04-10) page 5, line 4 - line 24; figure 4 ---	1,5,7, 11,15, 19,22, 26,29, 31,34, 36,37,39
A	WO 85 02293 A (HAUTE SECURITE VIDEO HSV S. A.) 23 May 1985 (1985-05-23) page 4, line 8 -page 9, line 16; figures 1-4 ---	1,5,7, 11,15, 19,22,26 -/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

^a Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	WO 99 11064 A (KONINKLIJKE PHILIPS ELECTRONICS N. V. ET AL.) 4 March 1999 (1999-03-04) page 3, line 22 -page 9, line 15; figures 1-4	1,2,7,8, 15,16, 18,19, 21,22, 24-26,28
A		3,5,6,9, 11,13, 14,20, 27,29, 31,34, 36,37,39
P,A	EP 0 903 736 A (HITACHI, LTD.) 24 March 1999 (1999-03-24) --- column 7, line 36 -column 10, line 16; figures 1-3A	1,4,5,7, 11,15, 17,19, 22,26, 29,31, 34,36, 37,39
A	US 5 530 759 A (BRAUDAWAY ET AL.) 25 June 1996 (1996-06-25) --- column 1, line 11 - line 61 column 4, line 8 - line 50; figure 1	29,31, 34,36, 37,39
A	EP 0 860 997 A (NEC CORPORATION) 26 August 1998 (1998-08-26) --- column 3, line 51 -column 5, line 56; figures 12,13	1,5,7, 11,15, 19,22, 26,29, 31,34, 36,37,39

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 00/04835

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-28

Method and apparatus for controlling copying of a video signal, comprising imbedding a watermark in the video signal, and providing associated data in a predetermined location of the video signal, the associated data being related to the watermark.

2. Claims: 29-40

Method and apparatus for controlling copying of a video or an audio signal, comprising imbedding a first watermark in the video or the audio signal, and imbedding a second watermark in the video or audio signal in response to an action by the user.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/04835

Patent document cited in search report	Publication date	Patent family member(s)			Publication date
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